

# DECORATIVE COIL LIGHTS

## Background of the Invention

The present invention relates to decorative string lights, and more particularly, to  
5 decorative string lights integrated with coiled memory wire to provide a light assembly  
that is visually pleasing, and easy to apply and store.

Decorative string lights, such as Christmas lights, are generally formed of  
insulated electrical wire and a plurality of small bulbs. The lengths of the string lights  
vary, along with the sizes, colors, and number of bulbs on the string.

10 When a set of string lights is applied to a Christmas tree, the string is generally  
wrapped around the trunk of the tree and along the branches of the tree. It is difficult to  
maintain a high density degree of the lights on the branches while hiding the excess  
insulated wire between the bulbs because the wire between the bulbs tends to sag from  
the branches, which is not visually pleasing. Further, standard string lights generally  
15 become tangled when they are removed from a Christmas tree and stored, unless  
significant time is invested in placing the string lights onto an oscillating light rack.

Accordingly, there is a need in the art for decorative string lights that provide  
increased visual pleasure and ease in applying and storing the lights.

## 20 Summary of the Invention

The present invention provides a lighting apparatus formed of: decorative lights  
that include electrical wire and a plurality of light bulbs electrically connected to the  
electrical wire; and a wire coil such that the decorative lights are attached to the wire  
coil. In a preferred embodiment, the wire coil is formed of a memory wire coil that is  
25 expandable and automatically retractable to its original length when released, and the

decorative lights are integrally bound to the wire coil. In an additional embodiment, the electrical wire includes at least two intertwined electrical wires, and the wire coil extends between the intertwined electrical wires. The lighting apparatus of the present invention preferably expands and resiliently retracts to its original length when released.

5           A method for making a decorative lights apparatus is also provided. The method includes the step of attaching decorative lights to a wire coil, the decorative lights including electrical wire and a plurality of light bulbs, and the wire coil being expandable and resiliently retractable to its original length when released. In one embodiment, the attaching step includes integrally binding the electrical wire to the wire coil. In an  
10 additional embodiment, the attaching step includes extending the wire coil through at least two intertwined wires of the electrical wire.

### **Brief Description of the Drawings**

The present invention is better understood by a reading of the Detailed  
15 Description of the Preferred Embodiments along with a review of the drawings, in which:

Figure 1 is a perspective view of the coil lights of the present invention in expanded form.

Figure 2 is a perspective view of coiled memory wire in accordance with the  
20 present invention.

Figure 3 is a schematic view of coiled memory wire fed through intertwined insulated wires of a set of string lights.

Figure 4 is a schematic view of insulated wire integrally bound to insulated electrical wire of a set of string lights.

## Detailed Description of the Preferred Embodiments

The illustrations and examples discussed in the following description are provided for the purpose of describing the preferred embodiments of the invention and are not intended to limit the invention thereto.

5 As shown in Figure 1, the coil lights 100 of the present invention are formed of a string of decorative lights 102 and coiled memory wire 104. The string lights 102 include insulated electrical wire 106 and a plurality of bulbs 108, and are attached to the memory wire coil 104 to form the present invention. Memory wire is wire made of nickel and titanium, called nitinol. The wire is easily bent and "remembers" its shape  
10 when it is molded while being heated. Memory wire is commonly molded into the shape of a coil or spring, such as the coil 104 shown in Figure 2. The coiled memory wire 104 has a high spring retention and resiliently retracts to its original length after being expanded. Coiled memory wire 104 is manufactured in a plurality of wire diameters and coil diameters.

15 In a preferred embodiment of the present invention, a standard set of string lights 102 is attached to coiled memory wire 104 such that the memory wire 104 is substantially covered by the string lights 102. The string lights 102 may be attached to the memory wire 102 by a plurality of methods. In a first method, a set of string lights 102 includes at least two strands of insulated electrical wire 106a, 106b that are  
20 intertwined or plaited with one another, as shown in Figure 3. The memory wire 104 is fed through the intertwined or plaited electrical wires 106a, 106b such that the string lights 102 fit snugly with the memory wire 104.

In a second embodiment, the string lights 102 are integrally manufactured with the memory wire 104. Specifically, as shown in Figure 6, the memory wire 104 may be encapsulated in insulation, similar to the insulated electrical wire 106. The encapsulated memory wire 104 may be bound together with the insulated electrical wire 106.

5        The decorative coil lights 100 of the present invention provide several advantages over prior art decorative string lights and have a plurality of uses. For example, an average strand of 100-bulb string lights measures about 46 feet. When the same strand of string lights is attached to a 1-3/8" diameter memory wire coil 104 by one of the above-described methods, for example, the resulting coil of string lights is about  
10    30" long. The coil expands, thereby allowing for easy placement of the coil around a Christmas tree base and branches. The amount of time associated with decorating a Christmas tree with prior art decorative string lights is dramatically reduced by using the coil lights 100 of the present invention. The circular design of the memory wire supports the lights and prevents sagging associated with prior art string lights. The circular design  
15    also helps to prevent sagging of the connecting plugs when coil lights sets are connected to one another. Thus, the lights appear to "stand away" from the cords for increased light density, thereby providing a more visually pleasing display and making it easier to identify blown bulbs. Further, the coil lights 100 provide a unique spiral pattern that is also visually pleasing.

20        Unlike prior art decorative light strings, the coil lights 100 of the present invention are easily disassembled. Specifically, the coil lights 100 automatically return to their compressed length and are then available for storage. As mentioned above, there is no concern over the cords tangling during storage or with tediously winding the cord around an oscillating storage rack.

Certain modifications and improvements will occur to those skilled in the art upon a reading of the foregoing description. For example, the coil lights of the present invention are not limited to application on Christmas trees or indoor use. Rather, the coil lights may be applied in several ways used in a variety of applications, such as on stair rails, wreaths, garland, lampposts, mail boxes, shrubbery, columns, porch railings. All such modifications and improvements of the present invention have been deleted herein for the sake of conciseness and readability but are properly within the scope of the following claims.